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EXAMINER

HSU, JONI

ART UNIT

PAPER NUMBER

2628

DATE MAILED: 04/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/622,749	Applicant(s) KARLOV, DONALD DAVID	
	Examiner Joni Hsu	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-35 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-16, 18, 19, 23-29 and 36 is/are rejected.
- 7) ☒ Claim(s) 3-5, 17, 20-22 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

2. Applicant's arguments, see pages 8-9, filed February 13, 2006, with respect to the rejection(s) of claim(s) 1, 2, 6-16, 18, 19, 23-29, and 36 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Chauvel (US004814756A).

3. Applicant argues that the Examiner's cited prior art does not teach the use of a starting point of a zone for storing the zone and tracking revisions to zones (page 8).

In reply, the Examiner agrees. However, new grounds of rejection are made in view of Chauvel.

4. Applicant's arguments, see pages 9-10, filed February 13, 2006, with respect to Claims 3-5, 17, 20-22, and 30-35 have been fully considered and are persuasive. The 35 U.S.C. 103(a) rejections of Claims 3-5, 17, 20-22, and 30-35 has been withdrawn.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1, 2, 6-16, 18, 19, 23-29, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shetter (US006342890B1) in view of Nobutani (US005613103A), further in view of Chauvel (US004814756A).

8. With regard to Claim 1, Shetter describes a method for updating an image on a computer display device, the method comprising logically dividing the image into a plurality of zones (*blocks of source sub-pixels to be accessed are shifted to account for a left side bearing remainder in the final display of the character*, Col. 5, lines 1-5).

However, Shetter does not teach tracking which zones are revised and updating only the revised zones on the image. However, Nobutani describes a method for updating the image on a computer display device, the method comprising tracking which zones are revised; and updating only the revised zones on the display device (*execute a partial rewrite of updating only the changed display data on the display screen*, Col. 1, lines 50-54).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Shetter to include tracking which zones are revised and updating only the revised zones on the image as suggested by Nobutani because Nobutani suggests that this increases the processing speed (Col. 1, lines 50-54; *rewrites executed for unnecessary lines lowers the processing speed*, Col. 2, lines 45-47).

However, Shetter and Nobutani do not teach storing each zone of the plurality of zones by a starting point of each zone, and tracking the revised zones using the starting point of each revised zone. However, Chauvel describes storing each zone of the plurality of zones by a starting point of each zone, and tracking the zones using the starting point of each zone (Col. 3, lines 31-44, Col. 3, line 59-Col. 4, line 3).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the devices of Shetter and Nobutani to include storing each zone of the plurality of zones by a starting point of each zone, and tracking the revised zones using the starting point of each revised zone as suggested by Chauvel because Chauvel suggests the advantage of being able to easily find and retrieve the zones (Col. 3, line 59-Col. 4, line 3).

9. With regard to Claim 2, Shetter describes that each zone of the plurality of zones is predefined (Col. 17, lines 50-59).

10. With regard to Claim 6, Shetter does not teach that the steps of logically dividing the image into a plurality of zones, and tracking which zones are revised, are both performed by the graphical processing unit using a video random access memory. However, Nobutani describes that the steps of logically dividing the image into a plurality of zones, and tracking which zones are revised (Col. 1, lines 50-54), are both performed by the graphical processing unit (213, Figure 2) using a video random access memory (212) (Col. 5, lines 40-56).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Shetter so that the steps of logically dividing the computer display device into a plurality of zones, and tracking which zones are revised, are both performed by the graphical processing unit using a video random access memory as suggested by Nobutani. VRAM is a special-purpose memory used by video adapters. Unlike conventional RAM, VRAM can be accessed by two different devices simultaneously. VRAM yields better graphics performance. VRAM is well-known in the art, widely used, and can be found in many publications, such as the Webopedia Online Encyclopedia.

However, Shetter and Nobutani do not teach tracking the revised zones using the starting point of each revised zone. However, Chauvel describes tracking the zones using the starting point of each zone (Col. 3, lines 31-44, Col. 3, line 59-Col. 4, line 3), as discussed in the rejection for Claim 1.

11. With regard to Claim 7, Shetter describes that the steps of logically dividing the image into a plurality of zones (Col. 5, lines 1-5) is performed by a central processing unit (521, Figure 5A) using a system random access memory (525) (*a number of program modules may be stored on RAM 525*, Col. 7, lines 33-40).

However, Shetter does not teach tracking which zones are revised. However, Nobutani describes tracking which zones are revised (Col. 1, lines 50-54), as discussed in the rejection for Claim 1.

However, Shetter and Nobutani do not teach tracking the revised zones using the starting point of each revised zone. However, Chauvel describes tracking the zones using the starting point of each zone (Col. 3, lines 31-44, Col. 3, line 59-Col. 4, line 3), as discussed in the rejection for Claim 1.

12. With regard to Claim 8, Shetter does not teach that the step of updating only the revised zones on the image is performed by a graphical processing unit writing the revised zones from a video random access memory to a frame buffer. However, Nobutani describes that the step of updating only the revised zones on the image is performed by a graphical processing unit (213, Figure 2) writing the revised zones from a video random access memory (212) to the display screen (Col. 1, lines 50-54; Col. 5, lines 40-56), and data is inherently sent to a frame buffer before going to the display screen. This would be obvious for the same reasons given in the rejections for Claims 1 and 6.

13. With regard to Claim 9, Shetter describes that the step of updating the zones on the image (Col. 5, lines 1-5) is performed by a central processing unit (521, Figure 5A) writing the zones from a system random access memory (525, 535, Figure 5A; 535', Figure 7) directly to a frame buffer (742) (Col. 7, lines 33-40; Col. 9, line 65-Col. 10, line 2; Figure 7).

However, Shetter does not teach updating only the revised zones. However, Nobutani describes updating only the revised zones on the display device (Col. 1, lines 50-54), as discussed in the rejection for Claim 1.

14. With regard to Claim 10, Shetter does not teach that the steps of logically dividing the image into a plurality of zones and tracking which zones are revised are both performed by a graphical processing unit in a video random access memory; and wherein the step of updating only the revised zones on the image is performed by the graphical processing unit writing the revised zones from the video random access memory to a frame buffer. However, Nobutani describes that the steps of logically dividing the image into a plurality of zones and tracking which zones are revised (Col. 1, lines 50-54) are both performed by a graphical processing unit (213, Figure 2) in a video random access memory (212) (Col. 5, lines 40-56); and wherein the step of updating only the revised zones on the image (Col. 1, lines 50-54) is performed by the graphical processing unit writing the revised zones from the video random access memory to the display screen (Col. 5, lines 40-56), and data is inherently sent to a frame buffer before going to the display screen. This would be obvious for the same reasons given in the rejections for Claims 1 and 6.

However, Shetter and Nobutani do not teach tracking the revised zones using the starting point of each revised zone. However, Chauvel describes tracking the zones using the starting point of each zone (Col. 3, lines 31-44, Col. 3, line 59-Col. 4, line 3), as discussed in the rejection for Claim 1.

15. With regard to Claim 11, Shetter describes that the steps of logically dividing the image into a plurality of zones (Col. 5, lines 1-5) is performed by a central processing unit (521, Figure 5A) in a system random access memory (525) (Col. 7, lines 33-40); and wherein the step of updating the zones on the image is performed by the central processing unit writing the zones from the system random access memory (525, 535, Figure 5A; 535', Figure 7) directly to the frame buffer (742) (Col. 7, lines 33-40; Col. 9, line 65-Col. 10, line 2; Figure 7).

However, Shetter does not teach tracking which zones are revised and updating only the revised zones. However, Nobutani describes tracking which zones are revised and updating only the revised zones on the display device (Col. 1, lines 50-54), as discussed in the rejection for Claim 1.

However, Shetter and Nobutani do not teach tracking the revised zones using the starting point of each revised zone. However, Chauvel describes tracking the zones using the starting point of each zone (Col. 3, lines 31-44, Col. 3, line 59-Col. 4, line 3), as discussed in the rejection for Claim 1.

16. With regard to Claim 12, Shetter describes that the method is executed in conjunction with the use of a text-enhancement technology (Col. 6, lines 24-31).

17. With regard to Claim 13, Shetter describes that the text-enhancement technology minimizes the placement errors of the sub-pixels when rounding to pixel precision (Col. 8, lines 39-58). Anti-aliasing is the technique of minimizing aliasing when representing a high-resolution signal at a lower resolution, so the text-enhancement technology is a sub-pixel anti-aliased.

18. With regard to Claim 14, Claim 14 is similar in scope to Claim 12, and therefore is rejected under the same rationale.

19. With regard to Claim 15, Claim 15 is similar in scope to Claim 13, and therefore is rejected under the same rationale.

20. With regard to Claim 16, Shetter describes that the method is executed on a computer system that favors a system-to-video flow of data traffic, as shown in Figure 7 (Col. 8, line 59-Col. 9, line 17).

21. With regard to Claim 18, Claim 18 is similar in scope to Claim 1, and therefore is rejected under the same rationale.

22. With regard to Claim 19, Claim 19 is similar in scope to Claim 2, and therefore is rejected under the same rationale.

23. With regard to Claim 23, Claim 23 is similar in scope to Claim 6, and therefore is rejected under the same rationale.

24. With regard to Claim 24, Claim 24 is similar in scope to Claim 7, and therefore is rejected under the same rationale.

25. With regard to Claim 25, Claim 25 is similar in scope to Claim 8, and therefore is rejected under the same rationale.

26. With regard to Claim 26, Claim 26 is similar in scope to Claim 9, and therefore is rejected under the same rationale.

27. With regard to Claim 27, Claim 27 is similar in scope to Claim 12, and therefore is rejected under the same rationale.

28. With regard to Claim 28, Claim 28 is similar in scope to Claim 14, and therefore is rejected under the same rationale.

29. With regard to Claim 29, Claim 29 is similar in scope to Claim 16, and therefore is rejected under the same rationale.

30. With regard to Claim 36, Claim 36 is similar in scope to Claim 1, and therefore is rejected under the same rationale.

Allowable Subject Matter

31. Claims 31-35 are allowed.

32. Claims 3-5, 17, 20-22, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

33. The prior art taken singly or in combination do not teach or suggest a method comprising dividing an image into a plurality of zones; storing each zone by a starting point of each zone; tracking revised zones using the starting point of each revised zone; updating only the revised zones on the image; wherein each zone has the same dimensions and number of pixels as the other zones, as recited in Claims 3, 4, 20, and 21. Claims 5 and 22 depend from these claims, and therefore also contain allowable subject matter.

The prior art also does not teach a method comprising dividing an image into a plurality of zones; updating only the revised zones on the image; wherein system random access memory used for dividing the image into a plurality of zones for tracking revised zones using the starting point of each revised zone is allocated at startup, as recited in Claims 17 and 30.

The prior art also does not teach a system comprising a shadow memory in the memory comprising a plurality of zones; a zone grid in the memory for tracking by a starting point of each zone whether changes occur each zones; a processing unit for rendering revisions to the shadow memory and tracking by a starting point of each zone in the zone grid which zones of the plurality of zones are revised; a frame buffer to which the processing unit, based on the information stored in the zone grid, writes only those zones that have been revised from the shadow memory to the frame buffer, as recited in Claim 31. Claims 32-35 depend from Claim 31, and therefore also contain allowable subject matter.

34. The closest prior art (Kusama US006633685B1) teaches that each zone of the plurality of zones has the same dimensions and number of pixels as the other zones (Col. 7, lines 14-21). However, Kusama does not teach updating only the revised zones on the image.

35. Another prior art (Goldberg US005877779A) teaches that the system memory used for performing an operation is allocated at startup (Col. 9, lines 14-18, 50-53). However, Goldberg does not teach updating only the revised zones on the image.

36. Another prior art (Van Hook US006675239B1) teaches a system comprising a memory (406, Figure 4); a shadow memory in the memory; a frame buffer to which the processing unit, writes data from the shadow memory to the frame buffer; and a display device (617, Figure 6B) coupled to the frame buffer (Col. 5, lines 58-65; Col. 6, lines 62-65). However, Van Hook does not teach updating only the revised zones on the image.

Prior Art of Record

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1. Kusama (US006633685B1) teaches an image processing method which allows a mosaic image to be generated at higher speed with a small amount of memory (Col. 1, lines 35-38).
2. Goldberg (US005877779A) teaches a system for rendering an object or scene from view-points selected by a user or a program (Col. 1, line 66-Col. 2, line 1).
3. Van Hook (US006675239B1) teaches a method of providing commands to a command memory where a graphics processor will have commands available for execution as long as there are commands available (Col. 2, lines 48-51).
4. "VRAM"; <http://www.webopedia.com/TERM/V/VRAM.html>.
5. "Static allocation"; p. 9; <http://www.memorymanagement.org/glossary/s.html>.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

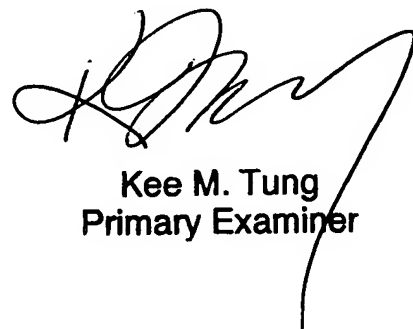
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH



Kee M. Tung
Primary Examiner